AN-R-14a
23 February 1944
Superseding
AN-R-14
20 April 1943

ARMY-NAVY AERONAUTICAL SPECIFICATION
RHEOSTATS; AIRCRAFT POWER

This specification was approved on the above date by joint action of the War and Navy Departments, for use in the procurement of aeronautical supplies and shall become effective immediately upon issue.

A. APPLICABLE SPECIFICATIONS.

A-1. The following specifications and drawings of the issue in effect on date of invitation for bids shall form a part of this specification:

A-1a. AN Aeronautical Specifications.-

AN-GGG-S-126	Screw-Threads; Standard, Aircraft
AN-QQ-S-91	Salt-Spray-Corrosion-Test; Process-For

A-1b. Federal Specification.-

E-UU-T-111	Tape; Paper, Gummed (Kraft)

A-1c. AN Aeronautical Standard Drawings.-

AN3155	Rheostat - Aircraft Power
AN3220	Knob - Pointer

A-1d. Other Government Specification.-

100-14:39P16	Packaging and Packing for Overseas Shipment; Army-Navy General Specification for

A-1e. American War Standard .-

C39.3-1943	Shock-Testing Mechanism for Electrical Indicating Instruments.

A-2. Special requirements of the individual Departments of the Government are noted under section H.

B. TYPE.

B-1. This specification covers the requirements for linear and taper wire-wound rheostats of the nominal wattage and resistance ratings listed on Drawing AN3155.

C. MATERIAL AND WORKMANSHIP.

C-1. Material.- Materials shall conform to applicable specifications as specified herein. Materials which are not covered by applicable specifications shall be of the best commercial quality and suitable for the purpose intended.

C-1a. Metals.-

C-1a(1). All metal parts shall be corrosion resisting or suitably plated to resist corrosion during the normal service life of the rheostat.

C-1a(2). Unless suitably protected, dissimilar metals, such as brass, copper or steel shall not be used in intimate contact with aluminum or aluminum alloys.

C-2. Standard Parts.- AN Standard parts and AN Standard part numbers therefor shall be used wherever they are suitable for the purpose. Commercial utility parts such as screws, bolts, nuts, washers, cotter pins, etc. may be used provided they are replaceable by AN Standard parts without alteration, and provided the corresponding AN part numbers are referenced on the drawings and in the parts lists. In applications for which no suitable corresponding AN Part is in effect on date of invitation for bids, commercial parts may be used provided they conform to all requirements of this specification.

C-3. Workmanship.- All details of workmanship shall be in accordance with high grade manufacturing practice for this type of work. All parts of the rheostat assembly shall have a smooth workmanlike finish, free from pores, ragged edges, or tool marks.

D. GENERAL REQUIREMENTS.

D-1. See section E.

E. DETAIL REQUIREMENTS.

E-1. Design.- The rheostat shall be of the circular wire wound type with a rotating contact arm, and substantially in accordance with Drawing AN3155. The assembled rheostat and component parts shall be of rugged design, capable of withstanding aircraft service usage.

E-1a. Size and Weight.- The dimensions and weight of the rheostats shall conform to Drawing AN3155.

E-1b. Rotation.- Unless otherwise specified the arrangement of the rheostat assembly shall be such that when the operator faces the rheostat mounted on the panel, a clockwise rotation of the knob shall decrease the resistance.

E-1c. Temperature Range.- The rheostat shall operate satisfactorily in the temperature range from -55°C. (-67°F.) to +70°C. (+158°F.).

E-1d. Off-Position.- Unless otherwise specified, the rheostat shall be provided with an "OFF" position. The construction of the "OFF" position shall be such that the operator will know without question when the contact is turned from the winding. This construction shall be approved by the Qualifying Agency.

E-1e. On-Position.- Unless otherwise specified, when the rheostat is turned on (from the "OFF" position), the brush contact shall be in the position to provide maximum resistance.

E-1f. Electrical Connectors.- Two terminals, tapped for and equipped with binding screws of the size , number and type shown on the applicable drawing and attached securely to prevent weaving shall be provided, one electrically connected to the resistance wire and the other electrically connected to the contact arm. Terminals shall be substantially as shown on Drawing AN3155. Terminals and current carrying parts shall be of corrosion

resistant material or shall be suitably plated to resist corrosion except as otherwise specified herein.

E-1g. Contact Arm.- The contact shall be made to the resistance wire by means of a contact bearing upon the contact area of the windings. The contact shall maintain uniform positive spring pressure at all positions on the resistance wire. The entire contact arm assembly shall be sufficiently rugged to eliminate the necessity of adjustment at any time. The contact shall permit uniform electrical and mechanical control for all electric loads within the rheostat rating.

E-1h. Knob.- The knob shall conform to Drawing AN3220.

E-1i. Winding.- The resistance wire shall be wound on the core under uniform tension and equal spacing between the turns of identical wire size. The wire shall be securely set on the core so as to avoid lateral displacement or bunching, under the action of the contactor. No organic material shall be used that will smoke, burn, or char at the operating temperature of the rheostat.

E-1i(1). Linear Wound Rheostats.- Linear wound rheostats shall have windings of a single wire size.

E-1i(2). Taper Wound Rheostats.- Taper wound rheostats shall be constructed of two or more sections of winding. The sections shall be connected by brazing, silver soldering, welding, or any other approved method. The resistance taper shall be proportioned so that the rheostat will meet the requirements specified for Temperature Rise at any of the Current - Resistance values specified in Table I.

E-1j. Mounting.- The rheostat shall be mounted on the panel by the single hole mounting method and shall be equipped with a non-turn device as shown on Drawing AN3155. The shaft and mounting bushing shall be as shown on Drawing AN3155.

E-1k. Enclosure.- The rheostat shall be totally enclosed for protection against dust and mechanical or electrical damage.

E-1l. Shaft.- The shaft shall be provided with a flat side located directly opposite to the contactor.

E-1m. Angular Rotation.- The rheostat shall be designed to provide an angular rotation of 260 to 310 degrees (including "OFF" position).

E-1n. Non-Turn Device.- The non-turn device on the panel mounting surface of the rheostat shall be located in the plane passing through the center line of the shaft and the midpoint of the winding core. The device shall be on the same side of the shaft as the midpoint of the winding core. The non-turn device shall extend from the panel mounting surface of the rheostat the distance specified on drawing AN3155.

E-2. Finish.-

E-2a. Steel Parts.- Steel parts, except stainless steel, shall be suitably plated.

E-3. Threads.- Screw-threads shall conform to Specification AN-GGG-S-126.

E-4. Identification Marking.-

E-4a. Linear Wound Rheostats.- Each linear wound rheostat shall be permanently and legibly marked on the back or periphery with the following information:

RHEOSTAT - AIRCRAFT POWER
AN3155- (Proper dash number)
_____Ohms
_____Amps. Max.
_____Watts, Nominal
Manufacturer's name or trademark.

TABLE I
Minimum Current vs Resistance Requirements for Taper Wound Rheostats
(at ambient temperature of 25°C ±5°C (77°F ±9°F))

AN PART NO.												
DRAWING NO.	NOMINAL WATTS	RESISTANCE OHMS										
AN3155	-25	-10	Min Amps.	1.95	1.70	1.50	1.30	1.00	0.80	0.60	0.40	0.30	
			Ohms	.049	.40	.738	1.19	2.21	3.33	4.80	7.53	10.0	
AN3155	-25	-100	Min Amps.	0.85	0.80	0.70	0.60	0.55	0.50	0.40	0.30	0.20	0.16
			Ohms	.116	2.86	7.83	12.61	15.9	19.0	28.2	39.2	71.0	100.0
AN3155	-50	-5	Min Amps.	5.50	5.00	4.50	4.00	3.50	3.00	2.70	1.82		
			Ohms	.153	.470	1.00	1.70	2.23	3.09	3.60	5.00		
AN3155	-50	-10	Min Amps.	2.50	2.30	2.10	2.00	1.90	1.80	1.60			
			Ohms	0.04	1.96	4.11	5.18	6.17	7.35	10.00			
AN3155	-50	-25	Min Amps.	2.70	2.40	2.10	1.80	1.60	1.30	1.00	0.7	0.665	
			Ohms	0.05	1.64	3.43	5.35	6.88	10.03	15.5	23.97	25.0	
AN3155	-50	-30	Min Amps.	1.70	1.50	1.35	1.30	1.25	1.20	1.14	1.10	1.05	0.9
			Ohms	0.05	3.70	6.60	9.60	13.0	16.1	18.6	20.8	23.1	30.0
AN3155	-50	-100	Min Amps.	1.35	1.20	1.00	0.80	0.60	0.40	0.25			
			Ohms	0.06	4.90	11.5	22.2	37.0	64.5	100.0			
AN3155	-50	-150	Min Amps.	0.69	0.65	0.60	0.50	0.40	0.30	0.25	0.20	0.18	0.17
			Ohms	0.032	4.70	10.8	27.5	47.0	77.5	100.0	131.5	147.0	150.0
AN3155	-50	-200	Min Amps.	1.35	1.20	1.00	0.80	0.60	0.40	0.25	0.20	0.15	
			Ohms	.06	4.93	11.5	22.2	37.0	64.5	109.3	141.7	200.0	

E-4b. Taper Wound Rheostats.- Each taper wound rheostat shall be permanently and legibly marked on the back or periphery with the following information:

RHEOSTAT - AIRCRAFT POWER
AN3155- (Proper dash number)
_____Ohms
_____Amps. Max. at Min. Resistance
_____Amps. Max. at Max. Resistance
_____Watts, Nominal
Manufacturer's name or trademark.

E-5. Performance.- The rheostats shall satisfy the performance requirements specified in section F under paragraphs headed as follows:

(a) Dielectric
(b) Minimum Resistance
(c) Maximum Resistance
(d) Strength of Stop
(e) Strength of Terminals
(f) Temperature Rise
(g) Torque
(h) Life
(i) Corrosion Resistance
(j) Vibration
(k) Shock
(l) Cold Resistance

F. METHODS OF SAMPLING, INSPECTION, AND TESTS.

F-1. Classification.- The inspection and testing of the rheostats shall be classified as follows:

(A) Qualification Test.- Qualification tests are made on samples submitted for qualification as a satisfactory product prior to the award of a contract.

(B) Inspection Tests.- Inspection tests are made on samples submitted for acceptance under contract.

F-1a. Qualification Tests.-

F-1a(1). Qualification tests of rheostats will be conducted under the supervision of the Bureau of Aeronautics, Navy Department, Washington, D. C.

F-1a(2). The qualification tests of rheostats shall consist of all the tests of this specification. The qualification tests may, at the option of the Bureau of Aeronautics, be supplemented with tests under actual service conditions.

F-1b. Inspection Tests.-

F-1b(1). When inspection is conducted at the contractor's plant, the tests shall be accomplished by the contractor under the supervision of the Government Inspector.

F-1b(2). Contractors not having laboratory facilities satisfactory to the Inspector shall engage the services of a commercial testing laboratory acceptable to the Inspector.

F-1b(3). Previous acceptance or approval of material, or release of any design by the Government shall in no case be construed as a guaranty of the acceptance of the finished product.

F-1b(4). Inspection tests of routine representative sample rheostats shall normally consist of those described in the paragraphs headed Examination of Product, Dielectric, Minimum Resistance, Maximum Resistance, Strength of Stop and Strength of Terminals. Rheostats shall be subjected to any or all of the tests described herein if the Inspector considers it necessary in order to determine conformance with the requirements of this specification.

F-1b(5). Examination of Product.- Each rheostat submitted for acceptance under contract shall be examined externally to determine conformance with this specification with respect to Material and Workmanship, Design and Construction, Marking, and Conformance to Detail Drawings.

F-2. Report of Tests.- The contractor shall maintain a record readily available to the Inspector, showing quantitative results for all inspection tests required by this specification.

F-3. Sampling.-

F-3a. Qualification Test Samples.- The qualification test samples shall consist of three taper wound rheostats and three linear wound rheostats of each nominal wattage. If samples of both linear and taper wound rheostats of a wattage rating, satisfactorily pass the qualification tests specified herein, all rheostats of the same wattage rating with different resistances may be recommended for inclusion on the approved list without further tests. Samples shall be forwarded to the testing laboratory designated in the authorization for qualification tests, plainly identified by securely attached durable tags. marked with the following information:

Sample for Qualification Test
RHEOSTAT - AIRCRAFT POWER
AN3155- (proper dash number)
Manufacturer's identifying number
Name of manufacturer
"Submitted by (name) (date) for qualification tests in accordance with the requirements of Specification AN-R-14 under authorization (reference authorizing letter)."

F-3b. Production Samples.- Unless otherwise specified, the initial production article of each AN part number shall be forwarded to the laboratory of the Qualifying Agency for approval prior to fabrication of the remaining units. Production samples shall be in addition to the quantity on order and shall be supplied without increasing the cost of the contract. Samples shall be plainly identified by securely attached durable tags marked with the following information:

Production Sample
RHEOSTAT - AIRCRAFT POWER
AN3155- (proper dash number)
Manufacturer's identifying number
Name of manufacturer
Submitted by (name) (date) for check of production samples in accordance with requirements of Specification AN-R-14.

F-3c. Routine Representative Samples.- The Inspector shall select at least one rheostat at random for inspection tests from each lot of 1000 rheostats or fraction thereof on order, unless the order is for less than 100 rheostats and is accepted as hereinafter provided for in "Small Lots". All rheostats included in any lot shall be of the same AN part number and shall be submitted for inspection at the same time in connection with the same contract or order Samples shall be in addition to the number specified in the contract or order and shall be furnished without additional cost to the Procuring Agency.

F-3d. Small Lots.- For lots of less than 100 rheostats the Inspector may accept an affidavit from the rheostat manufacturer in lieu of any or all of the inspection tests. This affidavit shall certify that rheostats furnished on contracts or orders conform in all respects to this specification and are identical with samples which have previously passed all of the qualification tests specified herein. In no case shall this waiver of inspection tests be granted without submission of conclusive evidence that rheostats had previously passed the qualification tests of this specification.

F-4. Test Conditions.- Unless otherwise specified, all tests of this specification shall be made at an ambient temperature of 25 ±5°C. (77 ±9°F.).

F-5. Test Methods.-

F-5a. Dielectric.-

F-5a(1). At Atmospheric Pressure.- An approximate sine-wave test potential of 1500 volts rms from an ac supply at commercial line frequency shall be applied between the terminals and then between each terminal and the mounting bushing or shaft, as applicable, for one minute. There shall be no breakdown of insulation.

F-5a(2). At Reduced Pressure.- A sine-wave test potential of 550 volts rms from an ac supply at commercial line frequency shall be applied as specified for Atmospheric Pressure except that the pressure shall be 3.4 inches of mercury. There shall be no breakdown of insulation.

F-5b. Minimum Resistance.- The resistance of the rheostat shall be measured with the contact in the minimum resistance position by any method satisfactory to the Inspector which causes negligible heating of the rheostat winding. The resistance shall not exceed 0.2 ohm. This test determines the resistance of the lug, contact arm, and center lead assembly.

F-5c. Maximum Resistance.- The resistance of the rheostat shall be measured with the contact in the maximum resistance position by any method satisfactory to the Inspector which causes negligible heating of the rheostat winding. The resistance shall not vary more than minus 5 percent, plus 15 percent of the rated resistance.

F-5d. Strength of Stop.- The contact arm shall be rotated to both extremes and a torque of not less than 15 pound-inches shall be applied to the control shaft. There shall be no failure.

F-5e. Strength of Terminals.- A tensile load of 25 pounds shall be applied to each terminal, normal to the mounting plane of the rheostat for one minute. The rheostat shall then be operated several times and shall be checked for short circuiting while the terminals are loaded. Ability to operate mechanically and electrically after this test shall be considered suitable indication of conformance with this requirement.

F-5f. Temperature Rise.- The rheostat, without enclosure, shall be mounted at the center of a one foot square vertical panel of 1/16 inch thick steel in still air or shielded as far as practicable from air currents. No shielding, other than the mounting panel, shall be located less than 6 inches from the center of the rheostat. The hot junction of the thermocouple (number 38 A.W.G. wire or smaller) shall be soldered or cemented as close as practicable to the hottest point of the rheostat.

F-5f(1). Linear Wound Rheostats.- Using a constant load resistance, the load shall be adjusted to give maximum rated current at maximum resistance. The rheostat shall be left in this position for one hour. The control arm shall be rotated by successive steps, placing 1/3, 2/3, and all of the resistance into the circuit, with the control arm remaining in each position for a period of one hour. The hot spot temperature rise above ambient shall not exceed 300°C. (540°F.) at any setting.

F-5f(2). Taper Wound Rheostats.- The load shall be adjusted to give the current corresponding to the rheostat resistance settings specified in Table I, beginning with the point of lowest resistance in the table. The control arm shall be rotated by successive steps to each of the points listed in Table I with the control arm remaining in each position for a period of one hour. The hot spot temperature rise above ambient shall not exceed 300°C. (540°F.) at any setting.

F-5g. Torque.- The torque required to rotate the contact on the resistance windings shall be determined throughout the entire range by any method satisfactory to the Inspector. At no place, except at the full "OFF" position, shall the torque exceed 2-1/2 pound inches.

F-5h. Life.- The rheostat shall be inserted in a 28.5 volt constant voltage circuit providing maximum rated current at minimum resistance of the rheostat. The rheostat shall then be subjected to 10,000 cycles of operation, at the rate of approximately 20 cycles per minute. A cycle shall consist of rotating the rheostat from the "OFF" position to the full "ON" position and back to the "OFF" position. A suitable ammeter shall be connected in series with the rheostat to determine if proper contact is being made. At the completion of the operating cycles the rheostat shall be gradually rotated throughout its entire range and

the effect on the ammeter needle noted. The rheostat shall again be subjected to the Maximum Resistance test. The change in Maximum Resistance shall not exceed five percent. There shall be no mechanical failure of any kind. At the completion of the test there shall be no abrupt fluctuation of the ammeter needle when the rheostat is rotated gradually from full "OFF" to "ON" except at the full "OFF" position.

F-5i. Corrosion Resistance.- The corrosion resistance of the rheostat shall be determined by subjecting it to a salt spray for 100 hours in accordance with Specification AN-QQ-S-91. After the test has been conducted the rheostat shall be washed, air-dried, and examined for corrosion of all parts. The maximum resistance test and the Torque test shall again be conducted. The maximum resistance shall not have changed by more than five percent. The torque required to operate the rheostat shall not exceed 2-1/2 pound inches. The knob and hardware shall be readily removable.

F-5j. Vibration.- Vibration shall consist of simple harmonic motion, having an amplitude not exceeding 0.03 inch (maximum total excursion of 0.06 inch) and a frequency varied continuously and uniformly between the limits of 600 and 3,300 cycles per minute. The time required to pass through each cycle of the specified frequency variations shall be 1 to 5 minutes. The rheostat shall be mounted in a position most likely to cause malfunctioning thenvibrated as specified for a period of 5 hours. The contact arm shall be set at approximately 50 percent rotation position at start of test. The rheostat shall be tested with knob mounted thereon. If mounting in more than one position is considered likely to cause malfunctioning, the rheostat shall be vibrated for 5 hours in each position. A suitable test device shall be used to determine that vibration does not cause the contact arm to change position or momentarily open the circuit. There shall be no mechanical or electrical failure as determined by visual examination.

F-5k. Shock.- The rheostat shall be subjected to a transient decelerating force produced by securing the rheostat in each one of its rectangular positions in turn, to sufficient mass, and dropping the assembly through such a height that when decelerated by resilient impact, a deceleration of 25 gravity units shall be obtained. There shall be no mechanical or electrical failure or movement of the contact arm. American War Standard Shock Testing Mechanism C39.3-1943 revised for rheostat mounting is a satisfactory device for this test.

F-6l. Cold Resistance.- The rheostat shall be subjected to a temperature of -65°C. (-85°F.) for 48 hours. It shall then be carefully examined for damage. There shall be no loosening of electrical connections or rivets, breaking of electrical continuity, or other electrical or mechanical damage. At the option of the Inspector, any or all of the tests shall be conducted after this test.

F-7. Rejection and Retest.- When any representative sample fails to meet the requirements of the representative sample test the lot represented shall be rejected and returned at the contractor's expense. Any rheostat failing to meet the requirements of the individual tests shall be rejected and returned at the contractor's expense. Rheostats which have been rejected may be replaced or repaired to correct the defects and resubmitted for all the specified tests. Before resubmitting, full particulars concerning previous rejection and the action taken to correct the original defects shall be furnished the Inspector. Units rejected after retest shall not be resubmitted without the specific approval of the Procuring Agency.

G. PACKAGING, PACKING, AND MARKING FOR SHIPMENT.

G-1. General.- The packaging, packing and marking requirements specified herein apply only to direct purchases by the Government.

G-2. Interior Packaging.- Unless otherwise specified, each rheostat shall be wrapped or bagged with a suitable wrapping in such a manner that the rheostat is completely inclosed and protected against dust or dirt. Cushioning shall be in accordance with Specification 100-14:39P16, section headed "Cushioning Materials". Excelsior or similar cushioning materials having fine particles shall not be used. Each rheostat shall be separately

packaged within an interior container in accordance with Specification 100-14:39P16, section headed "Folding and Set-Up Boxes". Paper tape shall be in accordance with Specification 100-14:39P16, section headed "Gummed Paper Tape" except that the tape shall conform to Specification E-UU-T-111.

G-3. Exterior Packing.- Unless otherwise specified, all items shall be packed for domestic shipment. Shipping containers, insofar as possible, shall contain identical number of articles, shall be of a uniform size and shall be designed to enclose the contents in a snug, tight fitting manner. The gross weight of the exterior shipping container when packed for shipment shall not exceed approximately 200 pounds.

G-3a. Domestic Shipment.- Unless otherwise specified, for domestic shipment interior packages shall be packed in substantial commercial exterior shipping containers so constructed as to insure acceptance by common or other carrier for safe transportation, at the lowest rate, to the point of delivery. Except as specified herein, the container shall conform to the requirements of Consolidated Freight Classification Rules in effect at the time of shipment. The use of corrugated or solid fiberboard having a minimum Mullen test of less than 200 pounds is prohibited. Containers shall be able to withstand storage, rehandling, and reshipment without the necessity of repacking.

G-3b. Export Shipment.- Unless otherwise specified, for export shipment, the interior packages shall be packed in exterior shipping containers in accordance with Specification 100-14:39P16, sections headed "Cleated Plywood Shipping Boxes", "Nailed Wood Shipping Boxes", or "Fiberboard Shipping Boxes".

G-4. Marking.-

G-4a. Interior Packages.-

G-4a(1). Linear Wound Rheostats.- Each interior package shall be durably and legibly marked with the following information in such a manner that the markings will not become damaged when the packages are opened:

RHEOSTAT - AIRCRAFT POWER
AN3155- (proper dash number)
Resistance _____Ohms Max.
Current Capacity _____Amps. Max.
Rating _____Watts, Nominal
Name of contractor (and name of manufacturer if not the same)
Government order number or contract number (if any).

G-4a(2). Taper Wound Rheostats.- Each interior package shall be durably and legibly marked with the following information in such a manner that the markings will not become damaged when the packages are opened:

RHEOSTAT - AIRCRAFT POWER
AN3155- (proper dash number)
Resistance_____Ohms Max.
Current Capacity_____Amps. Max. at Min. Resistance
_____Amps. Max. at Max. Resistance
Rating_____Watts, Nominal
Name of contractor (and name of manufacturer if not the same)
Government order number or contract number (if any).

G-4b. Exterior Shipping Container.- Each exterior shipping container shall be marked as specified in section H.

H. REQUIREMENTS APPLICABLE TO INDIVIDUAL DEPARTMENTS.

H-1. The following departmental specifications of the issue in effect on date of invitation for bids shall form a part of this specification, applicable to purchases by the agency indicated.

H-1a. Army.- U. S. Army Specification 94-40645, Marking; Shipment (Domestic and Export). Copies of this specification may be obtained upon application to any of the Army Air Forces activities listed ir Section I.

H-1b. Navy.- Navy Shipment Marking Handbook. Copies of this handbook may be obtained upon application to the Bureau of Supplies and Accounts, Navy Department, Washington, D. C.

I. NOTES.

I-1. Use.- Rheostats covered by this specification are intended for use on aircraft.

I-2. Superseding Data.- This specification supersedes Specification AN-R-14 which superseded the current issues of U. S. Army Specification 94-32008, 94-32009, 94-32010 94-32011, 94-32032, 94-32144, 94-32112, 94-32145, 94-32177, 94-32178, 94-32235, 94-32251, 94-32229, 94-32259 and Navy Department Specification number 17R1 for Army and Navy aeronautical use.

I-3. Interchangeability.- The rheostats covered by this specification are functionally but not in all cases physically interchangeable with the corresponding rheostats covered by the antecedent specifications.

I-4. Ordering Data.- Requisitions, contracts and orders should state the AN part number of the rheostat desired.

I-5. Qualification Tests.- The right is reserved to reject any bids on rheostats which have not been subjected to the required tests and found satisfactory. The attention of manufacturers is called to this provision, and they are urged to request authorization for tests of the rheostats which they propose to offer to the Army or Navy under this specification. Requests for authorization of tests and for information as to the test fees involved should be addressed to the Bureau of Aeronautics, Navy Department, Washington, D. C. It is to be understood that the manufacturer shall pay all transportation charges to and from the point where tests are made. In the case of failure of the sample or samples submitted, consideration will be given to the request of the manufacturer for additional tests only after it has been clearly shown that the changes have been made in the product which the Government considers sufficient to warrant additional tests.

I-6. Definitions.-

I-6a. Nominal Wattage Rating.- The nominal wattage rating of the rheostat shall be defined as the product of the square of the maximum current permissible and the maximum resistance of the rheostat except that in the case of a taper wound rheostat it shall be defined as the product of the maximum current at Minimum Resistance, the Maximum current at Maximum Resistance, and the Maximum resistance.

I-7. Specifications.- When requesting specifications refer to both title and number.

I-7a. Copies of Army-Navy Aeronautical Specifications, Drawings, and Specification 100-14:39P16 may be obtained upon application to the Office of the District Supervisor in the following Army Air Forces Procurement Districts: New York, Atlanta, Detroit, Chicago, Wichita, and Los Angeles; or to the Army Air Forces, Materiel Command, Wright Field, Dayton, Ohio, or the Bureau of Aeronautics, Navy Department, Washington, D. C. Naval activities should make application to the Manager, Naval Aircraft Factory, U. S. Navy Yard, Philadelphia, Pa.

I-7b. Copies of Federal Specifications may be obtained upon application, accompanied by money order or coupon, or cash, to the Superintendent of Documents, Government Printing Office, Washington, D. C.

I-7c. Copies of American War Standards may be obtained upon application, to the American Standards Association 29 West 39th Street, New York 18, New York.

NOTICE: When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that Government may have formulated, furnished or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

☆U.S. GOVERNMENT PRINTING OFFICE: 1977-703-122/6779